**Mustafa Sheikh**

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**SKILLS**

**Software:** Python | C | Git | Bash | MATLAB | Simulink | Julia Language | Jira

**Engineering:** Agile | CAN | DFSS Black Belt | HIL | DoIP | UML | Synopsys Virtualizer

**WORK EXPERIENCE**

**General Motors,** Warren, MI

Virtual Hardware Application Engineer/Scrum Lead Nov2022 – Present

Virtual Electronic Control Unit application engineer for CAN based controller for software defined vehicle platform.

* Secured buy-in from technical specialists, release engineers, program teams, and senior management for proposed virtualization strategy for wireless SOCs.
* Worked with purchasing and technical leaders to evaluate virtual ECU platforms and suppliers while giving technical direction on integration and model development needs.
* Led team of 12 engineers under SAFe framework to deliver integrated virtual subsystems packages in predictable increments.
* Developed and maintained Python scripts to automate Synopsys Virtualizer based tests.
* Employed technical knowledge of VECUs to efficiently troubleshoot and resolve open issues, prioritizing customer needs.
* Devised 7-point framework to benchmark virtualization platforms which is serving as a basis for future decisions.
* Leveraged expertise in virtual workflows to collaborate with product owners and release train engineers, ensuring successful integration into the existing SAFe value stream.
* Lead design and development of integration tests for Sensor Diagnostic Module across organizations to demo occupancy and seat-belt buckle functionality functionality to Senior DREs using Synopsys Virtualizer.
* Introduced junior engineers to Object Oriented best practices for Pythonic code.

Senior Connectivity Development Engineer Mar 2021 – Nov 2022

OTA (“Over-the-Air”) Release Engineer for existing OnStar connected customers for PHEV and Evs (Chevy Volts and Bolts).

* Led cross-functional requirement development meetings with feature owner and systems teams to ensure requirements were understood, correct, and on time per feature roll-out plans.
* Employed Agile and Scrum principles to preempt and quickly resolve issues while giving presentations to upper management for decisions.
* Laid the groundwork for OTA process for existing vehicle lines' connectivity modules by working with system engineers and release engineers to create relevant functional requirements for supplier to execute.
* Collaborated with suppliers and senior leaders to develop a contingency plan to mitigate disruption for hundreds of thousands of legacy OnStar customers impacted by the 2G/3G sunset, safeguarding hundreds of millions of dollars in revenue and critical safety features for hundreds of thousands of vehicles.

**Aerotek (Contract at General Motors),** Warren, MI

Software Integration Engineer Sep 2020 – Mar 2021

Vehicle Side CAN Integration lead for OnStar 2G/3G Sunset Adapter project.

* Led cross-functional workshops between subject matter experts and suppliers to ensure project

requirements were understood and timelines were on track.

* Proactively tackled development and implementation challenges in test setups by partnering with connectivity systems and validation teams.
* Engaged system architects, subject experts, and suppliers to work on OTA related change requests for existing telematics modules.

**FAW US Research and Development,** Plymouth, MI

Autonomous Vehicle Controls Engineer Feb 2020 – Aug 2020

Collaborated with a team of controls engineers, systems engineers, and integration engineers for L4 AV Planning and Control.

* Researched Vehicle Dynamics models and methods of Lateral Control for vehicles under typical highway scenarios and implemented a LQR based Lateral Controller in MATLAB/Simulink.
* Worked closely with integration team to integrate and debug Software Releases in CarMaker SIL environment.
* Developed Object Oriented MATLAB scripts to analyze CAN data from MobilEye EyeQ4 system.

**Molex Connected Mobility**, Rochester Hills, MI

Tester Solution Developer Jan 2019 – Feb 2020

Automation solution developer supporting electronic module production, and launch activities for manufacturing and testing services group.

* Designed and documented manufacturing test solutions using UML methods and engaged in peer-review to verify functionality.
* Led identification and mitigation of risks in production lines during PFMEA discussions with a global cross-functional team.
* Collaborated with design and quality engineers to develop clear work instructions and troubleshooting procedures for resolving production problems related to electronics modules.
* Developed multi-threaded Python scripts to flash Firmware on in-vehicle Automotive Ethernet Gateway subsystem via REST API. Automated a 60 minute error-prone manual process down to 15 minutes.

**Ford Motor Company**, Dearborn, MI

Senior HIL Automation Engineer Apr 2013 - Nov 2018

Led design of Software and Hardware solutions for automated testing of highly distributed Infotainment, Body, and ADAS features as part of an interdisciplinary global team.

* Guided development of tools for scaling-up of HIL testing for Electronic and Software features.
* Selected and led teams of junior engineers for design and development of automated testing solutions.
* Mentored junior engineers in best practices for system design and tool usage.
* Investigated test-bench (HIL simulator) capabilities and extended them to meet testing requirements.
* Drove the integration and extension of HMI touchscreen automation tool created in Python. This enabled our lab to perform automated testing at scale for features with Ford Sync screen for the first time: saving 100s of hours of human testing time.
* Initiated dSPACE license restructuring efforts that freed up ~$80k worth of wasted software licenses while also allowing team to scale up from ~10 to ~40 engineers.

**EASi Engineering (Contract at Ford),** Dearborn, MI

HIL Engineer Jun 2012 – Apr 2013

Supported HIL Testing and Automation activities for Infotainment HIL subsystem by integrating and extending AutomationDesk solutions.

* Improved Robotic HMI tester by decreasing setup time and maintainability of AutomationDesk interface by ~50% via code refactoring and re- mapping data-structures.
* Performed demos for testing solutions for senior management.
* Led BOM validation and parts acquisition for HIL Simulator subsystem benches concurrently for multiple programs.
* Gave automation solution demos to management.

**EDUCATION**

BSc in Physics, University of Windsor

BSc in Electrical Engineering, University of Windsor